

## CLAIMS

What is claimed is:

- 5           1.     A method for generating a halftone image comprising:  
              choosing a set of allowed colors;  
              processing a color value;  
              quantizing said processed color value in a distorted device  
independent color space according to said set of allowed colors;  
10           diffusing quantization errors in device dependent color space;  
              outputting a halftone pixel according to said quantizing step.
2.     A method according to Claim 1 wherein, said distorted color space is  
CIE Lab colorspace.
- 15           3.     A method according to Claim 1 wherein, said output pixel is a CMYK  
halftone pixel.
4.     A method according to Claim 1 wherein, said set of allowed colors  
20           corresponds a given tone of said device dependent colorspace.
5.     A method according to Claim 1 wherein, said output pixel is a RGB  
halftone pixel.

6. A method according to Claim 1 wherein, a look up table is used to compute said quantization step.
7. A method according to Claim 1 wherein, said distorted device independent color space is weighted to discourage luminance fluctuations.
8. A method for generating a halftone image comprising:  
using the input tone to choose from a set of lookup tables;  
processing a color value;  
quantizing said processed color value by table lookup using the chosen lookup table.  
diffusing quantization errors in device dependent color space  
outputting halftone pixel according to said quantizing step.
9. A method according to Claim 8 wherein, said set of lookup tables corresponds to the tone of said device dependent color space.
10. A method according to Claim 8 wherein, said output pixel is a CMYK halftone pixel.
11. A method according to Claim 8 wherein, said output pixel is a RGB halftone pixel.
12. A method for generating a halftone image comprising:  
choosing a set of allowed colors;

processing a color value;  
quantizing said processed color value in a distorted device  
independent color space according to said set of allowed colors;  
diffusing quantization errors in device dependent color space;  
5 outputting clustered halftone pixels according to said quantizing step;

13. A method according to Claim 12 wherein, said output is feedback to  
quantizing step.

10 14. An apparatus for generating a halftone image comprising:  
a chooser for choosing a set of allowed colors;  
a processor for processing a color value;  
a quantizer for quantizing said processed color value in a distorted  
device independent color space according to said set of allowed colors;  
15 a diffuser to diffuse quantization errors;  
an output device for outputting a halftone pixel according to said  
quantizing step.

15. An apparatus according to Claim 14 wherein, a look up table is used  
20 for quantizing said color value.

16. An apparatus according to Claim 14 wherein, said distorted color  
space is CIELab colorspace.

